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EXAMINER

ORWIG, KEVIN S

ART UNIT	PAPER NUMBER
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1611

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/571,582	Applicant(s) KITAHATA ET AL.	
	Examiner Kevin S. Orwig	Art Unit 1611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The amendments and arguments filed Feb. 26, 2009 are acknowledged and have been fully considered. Applicants' arguments are moot in light of the new grounds of rejection set forth below. Claims 1-4 and 6-14 are now pending. Claim 5 is cancelled; claims 1 and 7 are amended; claims 8-14 have been added.

OBJECTIONS/REJECTIONS WITHDRAWN

The objection to claim 3 made in the Office Action dated Oct. 30, 2008 was obviously made in error since the claim was treated on its merits in the Office Action (see p. 4-5 of the Office Action). However, to clarify the record, the objection to claim 3 is withdrawn.

The rejection of claims 1, 2, and 4-7 under 35 U.S.C. 102(b) is withdrawn in light of the claim amendments.

The rejection of claim 3 under 35 U.S.C. 103(a) is withdrawn in light of the claim amendments.

NEW GROUNDS OF REJECTION

The instant claims are drawn to a substance-supporting hexagonal porous silica with a specific surface area, pore size, and particle size. Hexagonal porous silicas meeting all of the instant requirements are well-known in the art, and the only "inventive concept" of the instant claims appears to be the selection of an appropriate substance

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to be carried on (i.e. supported by) such silica. This aspect of the instant application is not inventive as selection of an appropriate substance is well within the purview of the skilled artisan to make based on the intended use of the substance-carrying silica.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 8, 9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by SHIO (WO 98/14399, Published Apr. 9, 1998; as evidenced by U.S. 6,511,668).

WO 98/14399 to Shio is published in Japanese. Thus, the patent resulting from the national stage entry of the international application is used herein as an English language equivalent. Column and line numbers refer to the '668 patent.

1. Shio discloses mesoporous silica and associated compositions that are useful as a carrier for cosmetics, pharmaceutical drugs and perfumes (abstract; col. 2, lines 24-34; col. 5, lines 57-59; Table 2; claim 1). Shio teaches that X-ray diffraction studies showed a hexagonal structure for the silica pores (Figs. 9, 12, 13, and 18; col. 20, lines 48-52), which is completely consistent with the data provided by applicants in the rule 132 affidavit submitted Feb. 26, 2009 to illustrate this very property (compare '668 Fig. 9 with Fig. 3 of the affidavit). Shio teaches an embodiment wherein the mesoporous powder holds a perfume (i.e. a volatile substance) (title; abstract; Fig. 21; col. 1, lines

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62-65; col. 3, lines 32-34; col. 23, line 57 to col. 24, line 52; claim 27). Shio teaches that the inventive silicas have a specific surface area of 900-1100 m²/g (Table 5). Shio teaches that mesoporous powders have pore sizes between 2-50 nm and that the disclosed silicas have a pore size of 30-35 Å (3-3.5 nm) (Table 5; col. 1, lines 16-19; Figs. 11 and 15).

2. Regarding claim 2, Shio teaches cosmetic preparations comprising the porous silicas of the invention and teaches that the silica powders can be compounded as an emulsion or dispersion and further teaches that other ingredients generally compounded into external preparations, such as surfactants (i.e. emulsifiers) can be compounded with the invention (col. 14, lines 28-51).

3. Regarding claim 4, Shio teaches that the particle size of the powder can be adjusted with extreme ease (col. 23, lines 55-56) and teaches that embodiments that preferably comprise particles with an outer diameter of 20-200 nm (col. 2, lines 11-15; claim 1). Thus, Shio anticipates claims 1-4, 6, 8, 9, and 11.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 7, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shio in view of YOSHIMOTO (JP 07-173452; Published Jul. 11, 1995; Ref. BB on IDS dated Mar. 10, 2006).

4. Shio discloses mesoporous silica and associated compositions that are useful as a carrier for cosmetics, pharmaceutical drugs and perfumes (abstract; col. 2, lines 24-34; col. 5, lines 57-59; Table 2; claim 1). Shio does not explicitly teach the other supported substances instantly claimed (i.e. menthols, thermal substances, plant polyphenols, and organic colorants). Nonetheless, as stated above, given the state of

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the art, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to select any one of these agents depending on the desired use of the silica composition.

5. For example, Yoshimoto discloses the use of fine porous inorganic particles such as silica to enclose various functional substances including antibacterials, perfumes, biocides, and agricultural chemicals (paragraph [0001]). Furthermore, Yoshimoto teaches that such use of porous silica is conventional (paragraph [0002]). Yoshimoto teaches the use of compounds including menthol (a known cooling substance) (paragraph [0015]) and camphor (paragraph [0013]), which is a "thermal substance" as defined in paragraph [0136] of the instant specification (pre-grant publication).

6. In light of these teachings, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to include either menthol or camphor, in the porous silica compositions of Shio to provide a coolant composition, or as a perfume or antimicrobial composition as taught by Yoshimoto. One would have had a high expectation of success in doing so since Shio teaches that the silicas are useful as carriers for cosmetics, pharmaceutical drugs and perfumes. Thus, one would have expected to arrive at functional compositions for any of these purposes by incorporating an appropriate cosmetic or bioactive agent based on the desired use of the composition. The combination of Shio and Yoshimoto renders claims 1, 7, 10, and 12 obvious.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill in the art might reasonably infer from the teachings. (*In re*

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Opprecht 12 USPQ 2d 1235, 1236 (Fed Cir. 1989); *In re Bode* 193 USPQ 12 (CCPA) 1976). In light of the forgoing discussion, the examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a). From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, in the absence of evidence to the contrary, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references.

Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shio in view of TERASE (JP 05-070120; Published Mar. 23, 1993; Ref. BC on IDS dated Mar. 10, 2006).

7. Shio discloses mesoporous silica and associated compositions that are useful as a carrier for cosmetics, pharmaceutical drugs and perfumes (abstract; col. 2, lines 24-34; col. 5, lines 57-59; Table 2; claim 1). Shio does not explicitly teach porous silicas as carriers for plant polyphenols. Nonetheless, as stated above, given the state of the art, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to select any one of these agents depending on the desired use of the silica composition.

8. For example, Terasse discloses the use of porous silica to adsorb turbidity causing substances from beer (paragraphs [0005], [0006], [0016], and [0018]). The substances taught to be removed by the silica include polyphenols produced from

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fermentation of barley and hops (i.e. plant polyphenols) (paragraphs [0002], [0003], [0007], and [0018]).

9. In light of these teachings, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the porous silicas taught by Shio to adsorb plant polyphenols.

10. If one wanted a means to remove unwanted polyphenols from, for example, beer, one would have been motivated to use the porous silicas of Shio with a high expectation of success since Terasse teaches porous silica is useful for this purpose. The combination of Shio and Terasse renders claims 1 and 13 obvious.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill in the art might reasonably infer from the teachings. (*In re Opprecht* 12 USPQ 2d 1235, 1236 (Fed Cir. 1989); *In re Bode* 193 USPQ 12 (CCPA) 1976). In light of the forgoing discussion, the examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a). From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, in the absence of evidence to the contrary, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references.

Claims 1, 2, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shio in view of ANDERSON (U.S. 6,096,469; Issued Aug. 1, 2000).

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11. The teachings of Shio are presented *supra*. Shio teaches the use of pigments compositions of the invention (col. 14, line 50). While this teaching alone would be sufficient to guide an ordinary artisan to include an organic colorant in the silica compositions, this rejection is made under obviousness since Shio does not describe such an embodiment sufficiently to be anticipatory.

12. Anderson discloses surfactant templated mesoporous (STM) particles as receptors for ink (abstract; col. 1, lines 62-64; col. 2, lines 34-38; claims 1-6 and 14) that may include additional surfactant (i.e. an emulsifier) (col. 10, lines 54-67). In light of these teachings, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use an organic colorant such as a dye, pigment, or ink as taught by Anderson in conjunction with the porous silicas of Shio. One would have had a high expectation of success since Shio directly teaches the use of pigments.

Summary/Conclusion

Claims 1-4 and 6-14 are rejected; claim 5 is cancelled.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin S. Orwig whose telephone number is (571)270-5869. The examiner can normally be reached Monday-Friday 7:00 am-4:00 pm (with alternate Fridays off). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sharmila Landau can be reached Monday-Friday 8:00 am-5:00 pm at (571)272-0614. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KSO

/David J Blanchard/
Primary Examiner, Art Unit 1643